

REMARKS/ARGUMENTS

The status of the claims is as set forth in the above listing of the claims. By the present Amendment, claims 1 and 14 are amended. No new matter has been added. Accordingly, claims 1, 4-25 and 51-52, as herein amended, remain pending in the present application. Reconsideration and allowance of all pending claims is respectfully requested.

I. REJECTIONS UNDER 35 U.S.C. § 112

The Examiner has rejected claims 1, 4-13 and 51 under 35 U.S.C. §112, second paragraph, as allegedly being indefinite. Specifically, the Examiner believes the phrase “fibers directionally aligned in a plurality of crossing linear formations” is indefinite. The Examiner argues that “if fibers are directionally aligned, it is presumed that the fibers cannot additionally be aligned in a plurality of crossing linear formations since the fibers, in totality, would no longer be directionally aligned.”

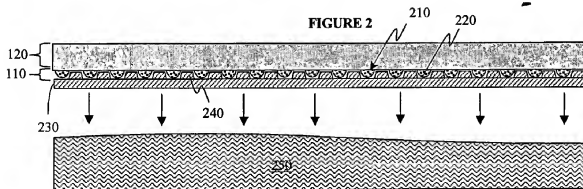
The Applicants respectfully disagree with the Examiner, and assert that the claimed fibers may be aligned in the claimed plurality of crossing linear formations. Specifically, the claim language in question does not claim that the fibers in the first surface are “unidirectionally aligned” or “directionally aligned in a single direction.” As a result, the Applicants believe it is clear that the language at issue recites fibers directionally aligned in linear formations in one directions, as well as fibers directionally aligned in linear formations in another direction that cross the first linear formations. Furthermore, the Applicants have amended claims 1 and 14 to recited that the plurality of linear formations are “a plurality of corresponding intersecting linear formations,” clarifying that different linear formations correspond to different directionally

aligned fibers. For at least these reasons, the Applicants respectfully assert that the language in question is not indefinite, and therefore that this rejection be withdrawn.

II. REJECTIONS BASED ON U.S. PUB. APPLIC. 2002/0121720 TO DAVIES

The Examiner has now rejected claims 1, 4, 6-15, 17-25, 51 and 52 under 35 U.S.C. §102(b) as allegedly anticipated by U.S. Patent Application No. 2002/0121720 to Davies, or in the alternative under 35 U.S.C. §103(a) as allegedly obvious in view of Davies. The Applicants respectfully disagree and have amended independent claims 1 and 14 to more explicitly emphasize features missing from the cited references.

Specifically, claim 1 recites fibers “directionally aligned in a plurality of intersecting linear formations that are formed on substantially the same linear plane such that fibers within linear formations in one direction are interlaced with fibers within linear formations in other directions at intersections of the intersecting linear formations.” Figure 2 of the present application, which is reproduced below, illustrates that the linear formations are formed on the same linear plane (layer 110).



By interlacing fibers at the intersections of the intersecting linear formations, the strength of the material is autogenously increased over materials having layered intersecting linear formations.

And, this increase in strength is also obtained in less overall thickness for the material as compared to such conventional materials, since the linear formations are all formed on the same linear plane instead of being layered or stacked one over the other.

In contrast, Davies discloses a combination of distinct layers for each direction forming the surface of directionally aligned fibers, rather than a plurality of linear formations being formed on a single linear plane. Figure 5 of Davies, which is reproduced below, illustrates this distinction from the present claims.

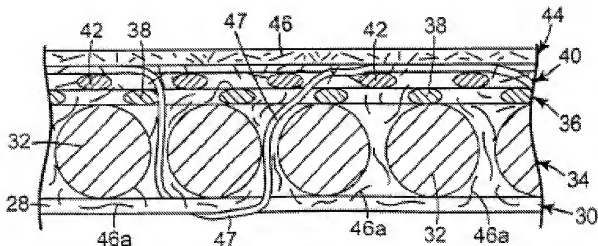


Fig. 5

More specifically, in a first layer 34, all of the fibers 32 are oriented 90 degrees from the pull direction of the manufacturing machine, then in the next layer 36 on top of the first layer 34, the fibers 38 are aligned in another direction. Accordingly, any alleged “crossing linear formation” in Davies are distinct stacked layers, but are not “intersecting linear formations formed on substantially the same linear plane” as is required by claim 1.

Still further, this stacked structure of Davies also prevents the fibers therein from being laid “in linear formations in one direction” that are “interlaced with fibers within linear formations in other directions at intersections of the intersecting linear formations” as required by the present claims. Because Davies’ directional layers are stacked, it is not possible for the fibers within any formations in Davies to be interlaced as required by claim 1. Still further, the fibers in the “crossing formations” of Davies are not chopped fibers as now recited in claim 1, but instead are continuous fibers extending across the length of the layer. Specifically, Para. [0084] of Davies refers to the fibers as “unbroken segments” that run from one edge of the mat to another edge, while Para. [0089] describes the fibers as “continuous and extend across the width of the reinforcing mat so as to maximize transmission of forces in respective diagonal directions.” Independent claim 14 has been similarly amended as independent claim 1.

For at least the above reasons, Davies does not anticipate each and every element in independent claims 1 or 14, nor their dependent claims. Additionally, claims 1 and 14, and their dependents, are not obvious in view of Davies since there is no suggestion in Davies for forming linear formations on a single linear plane such that the fibers are interlaced, and even teaching against the use of chopped fibers. Accordingly, the Applicants respectfully request that the Examiner withdraw the §102 and §103 rejections of the present claims based on Davies.

III. REJECTIONS BASED ON U.S. PATENT 6,003,424 TO CORDOVA

The Examiner has now rejected claims 1, 4, 6-12, 14, 15, 17-22, 24, 25, 51 and 52 under 35 U.S.C. §102(b) as allegedly anticipated by U.S. Patent No. 6,003,424 to Cordova, or in the alternative under 35 U.S.C. §103(a) as allegedly obvious in view of Cordova. The Applicants respectfully disagree and, as stated above, have amended independent claims 1 and 14 to more

explicitly emphasize features missing from the cited references.

Like Davies, the layers of directional fibers in Cordova are separated into distinct layers, each such layer having unidirectional fibers. (See, col. 11, lns. 34-49). Cordova even explicitly teaches against combining multi-directional fibers in the same layer:

It is important that the arrays not be consolidated between networks with the matrix binder since this will stiffen the layer too much. An alternate nonwoven network of oriented fibers comprises interlaced unidirectional fiber tapes or stitch bonded fiber arrays.

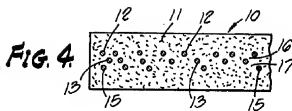
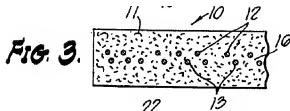
(Cordova; col. 11, lns. 45-49). In contrast, Claim 1 recites fibers “directionally aligned in a plurality of intersecting linear formations formed on substantially the same linear plane such that fibers within linear formations in one direction are interlaced with fibers within linear formations in other directions at intersections of the intersecting linear formations.” Instead, like Davies, Cordova discloses a combination of distinct layers for each direction forming the surface of directionally aligned fibers, rather than a plurality of linear formations being formed on a single linear plane.

For at least the above reasons, Cordova does not anticipate each and every element in independent claims 1 or 14, nor their dependent claims. Additionally, claims 1 and 14, and their dependents, are not obvious in view of Cordova since there is no suggestion in Cordova for forming linear formations on a single linear plane, and even teaching against the combination of multidirectional fibers in a single linear plane. Accordingly, the Applicants respectfully request that the Examiner withdraw the §102 and §103 rejections of the present claims based on Cordova.

IV. REJECTIONS BASED ON U.S. PATENT 4,250,221 TO PFEFFER

The Examiner has also maintained the rejection of claims 1, 4-9 and 12 under 35 U.S.C. §102(b) as allegedly anticipated by U.S. Patent 4,250,221 to Pfeffer. Specifically, the Examiner maintains his prior rejection based on Pfeffer by merely stating the Applicants' arguments in the prior Amendment "were not persuasive." However, in the present Office Action, the Examiner has only addressed the Applicants' arguments regarding the "strands, yarns, rovings" used by Pfeffer, and does not address the other arguments asserted by the Applicants.

More specifically, even if someone mistakenly believed that Pfeffer discloses the use of chopped fibers laid in a structure created by being dewatered from a slurry, the Applicants also previously argued that the layers of random and directional fibers in Pfeffer are not "opposing surfaces" of the material manufactured therein. Claims 1 and 14 recite a "second surface opposed to and coextensive with the first surface." However, Pfeffer instead teaches a material formed by strands 12 and 13 *within* a nonwoven base 11. Figs. 3 and 4 of Pfeffer, which are reproduced below, illustrate that the "directional fibers" (i.e., strands 12 and 13) are within the random nonwoven base material 11.



Therefore, it is simply unmistakable that the directional fiber strands 12 and 13 do not form a layer that is "opposed to" the nonwoven base material 11 as is required by claims 1 and 14. Thus, regardless of the type of fibers or strands used in Pfeffer, it is clear that Pfeffer still does not teach or suggest a second, random fiber layer "opposed to and coextensive with" a

directionally aligned first layer because strands 12 and 13 are formed *within* the base material 11. Still further, even if the base material 11 and the strands 12 and 13 were somehow found to be “opposing,” the strands 12 and 13 do not provide a “surface” of the mat, as required by claims 1 and 14, since they are dispersed completely within another layer.

Moreover, the strands 12, 13, (not chopped fibers) in Pfeffer are positioned at different planar levels within the base layer 11 in an effort to achieve strength. Since the strands are at different horizontal planar levels between the top and the bottom of the mat, a superior resistance is available to forces which would tend to tear the mat in a direction across its width, e.g., from left to right in the Figures, than is possible when a single layer of yarn is provided. This is also true relative to a mat in which the reinforcing strands are haphazardly or randomly oriented relative to the top and bottom surfaces of the mat. However, the overall physical properties of Pfeffer’s material versus a material according to the present claims are a function of the very different construction strategies. Because Pfeffer teaches randomness at the outer surfaces of the material, and use of nonlinear loops of yarns on different horizontal planes in its middle, Pfeffer specifically teaches against ordered fibers, strands, yarns, etc. on a *surface* of the material. Pfeffer mimics the dry construction of the earlier cited Hogendobler reference, but avoids separation of layers with a looped linear construction *within* the material. On the other hand, the present claims provide for a surface of ordered chopped fibers in the intersecting linear formations. Moreover, the mat of the present claims is made with chopped fibers of the same general slurry as used for the random layer, and thus do not represent an addition of longer length entities (e.g., fibers or stands) to the middle of a chopped fiber mat.

For at least the above reasons, Pfeffer does not anticipate each and every element in independent claims 1 or 14, nor their dependent claims. Accordingly, the Applicants respectfully request that the Examiner withdraw the §102 rejection of the present claims based on Pfeffer.

V. REJECTED DEPENDENT CLAIMS

The Examiner has also rejected claims dependent claims 5 and 16 under 35 U.S.C. §103 as allegedly obvious and thus unpatentable over Davies as applied to claims 1 and 14, and further in view of Pfeffer. The Applicants respectfully assert that these dependent claims are not obvious in view of this combination of references since these dependent claims depend from independent claims 1 and 14, respectively. As discussed above, neither Davies nor Pfeffer teaches or suggests all of the elements recited in independent claims 1 and 14. As a result, the combination of Davies and Pfeffer also does not teach or suggest all of the elements of dependent claims 5 and 16, which respectively depend from claims 1 or 14. Thus, claims 5 and 16 are also not obvious in view of Davies and Pfeffer, and the Applicants therefore respectfully request that the Examiner withdraw the §103 rejection with respect to these dependent claims as well.

VI. CONCLUSION

The Applicants respectfully submit that all pending claims are in condition for allowance, and request a Notice of Allowability for the pending claims. The Examiner is invited to contact the undersigned Attorney of Record if such would expedite the prosecution of the present application.

The three-month response deadline to the present non-final Office Action is set to expire on August 11, 2007, this Amendment is timely. In addition, although no fees are believed due at

this time, if any fees are determined to be due, the Applicants hereby authorize the Director to charge or credit such amount to Deposit Account No. 13-0480, referencing the Attorney Docket Number specified herein.

Respectfully submitted,

/James H. Ortega/

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